



UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL MARINE FISHERIES SERVICE  
Northwest Region  
7600 Sand Point Way N.E., Bldg. 1  
Seattle, WA 98115

Refer to:  
OSB1997-0854

December 15, 1997

Clem Singer  
Rural Development Agency  
251 NE Garden Valley Parkway  
Suite M  
Roseburg, Oregon 97470

RE: Consultation on Cave Junction Water System Improvements

Dear Mr. Singer:

This responds to your Biological Assessments (BAs) describing the effects of proposed improvements to the City of Cave Junction's water system on listed and proposed anadromous salmonids, and requesting ESA consultation, received by the National Marine Fisheries Service (NMFS) on July 31 and October 6, 1997, respectively. The improvements would consist of the construction of a new water intake structure in the East Fork Illinois River, a new water treatment plant, three new storage reservoirs, and the installation of new water transmission and distribution pipelines. The proposed water intake design is a permanent infiltration gallery in the riverbed, which would replace the annually-constructed push-up dam that is currently used to divert water from this stream.

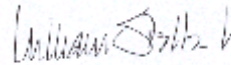
The Southern Oregon/Northern California (SONC) coho salmon (*Oncorhynchus kisutch*) has been listed as threatened under the Endangered Species Act (ESA) by the National Marine Fisheries Service (NMFS) (May 6, 1997, 62 FR 42588). SONC coho occur between Cape Blanco, Oregon, and Punta Gorda, California. Critical habitat for SONC coho was proposed by NMFS on November 25, 1997 (62 FR 62741). Klamath Mountain Province (KMP) steelhead (*O. mykiss*) has been proposed for listing as threatened under the ESA by NMFS (March 16, 1995, 60 FR 14253), and the final decision whether to list this species has been deferred to February 1998 (August 18, 1997, 62 FR 43974). KMP steelhead occur between Cape Blanco, Oregon, and the Klamath River Basin (inclusive) in California.



Your original BA (dated December 1995) and request for conferencing on KMP steelhead (dated October 1, 1997) stated the belief that SONC coho salmon would not be present in the East Fork Illinois River during the proposed in-water work period (June 15-September 15). Research by my staff, however, revealed the potential for the presence of juvenile SONC coho at the proposed in-water construction site into July. Based on this new information, you agreed, in an October 10, 1997, telephone conversation with Dan Kenney, of my staff, that formal consultation on the effects of proposed action on SONC coho was required.

Enclosed is the biological opinion on the Cave Junction water system improvements authorizing the incidental take of these two species (KMP steelhead may be listed before the action is completed) that is likely to be caused by this action, provided that the terms and conditions of the incidental take statement are met. If you have any questions regarding this opinion, please contact Dan Kenney, Fishery Biologist at (541) 957-3385.

Sincerely,



William Stelle, Jr.  
Regional Administrator

Enclosure

cc: Chuck Lobdell (USFWS, Portland Field Office)  
Mike Evenson (ODFW, Central Point)

Endangered Species Act - Section 7  
Consultation

**BIOLOGICAL OPINION**

Effects of Construction of the City of Cave Junction Water  
System Improvement Project on Southern Oregon/Northern  
California Coho Salmon and Klamath Mountain Province  
Steelhead

Agency: Rural Development, Department of Agriculture

Consultation Conducted By: National Marine Fisheries  
Service, Northwest Region

Date Issued: December 15, 1997

Refer to: OSB1997-0854

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## **I. Background**

The Southern Oregon/Northern California (SONC) coho salmon (*Oncorhynchus kisutch*) has been listed as threatened under the Endangered Species Act (ESA) by the National Marine Fisheries Service (NMFS) (May 6, 1997, 62 FR 42588). Critical habitat for SONC coho was proposed by NMFS on November 25, 1997 (62 FR 62741). SONC coho occur between Cape Blanco, Oregon, and Punta Gorda, California. Klamath Mountain Province (KMP) steelhead (*O. mykiss*) has been proposed for listing as threatened under the ESA by NMFS (March 16, 1995, 60 FR 14253), and the final decision whether to list this species has been deferred to February 1998 (August 18, 1997, 62 FR 43974). KMP steelhead occur between Cape Blanco, Oregon, and the Klamath River Basin (inclusive) in California.

In a letter dated October 1, 1997, the Roseburg Office of the Rural Development Agency (RDA) of the Department of Agriculture requested informal consultation and formal conferencing for the construction of an infiltration gallery-type water intake and associated facilities on the East Fork of the Illinois River in Cave Junction, Josephine County, Oregon. The proposed intake site would be at approximately River Mile 1.0 on the East Fork Illinois River, just upstream of the U.S. Highway 199 bridge on the southwest edge of the City of Cave Junction. A Biological Assessment (BA) and Supplemental BA had previously been received by the NMFS on July 31, 1997. RDA is providing funding to the City of Cave Junction for the construction of the project. Subsequent to receipt of the BA, NMFS staff received information that indicated the likely presence of SONC coho at the project site during the in-water work period. In an October 10, 1997, telephone conversation, NMFS staff discussed with Mr. Clem Singer, RDA (Roseburg), the necessity of formal consultation for SONC coho, as well as the requested formal conferencing for KMP steelhead. Additional information, in the form of up-to-date design drawings, were provided by Mr. James R. Shaver, an engineering consultant for the City of Cave Junction, with a letter dated October 13, 1997.

The objective of this biological opinion is to determine whether the construction of the Cave Junction Water Treatment Plant is likely to jeopardize SONC coho salmon, listed as threatened under the ESA, or KMP steelhead, proposed as threatened under the ESA, or result in destruction or adverse modification of proposed critical habitat for SONC coho salmon. Although NMFS expects some effects to individual fish and their habitat from these actions, the effects are expected to be insignificant because of project design and timing. Although critical habitat has not been proposed for KMP steelhead, this biological opinion considers effects to salmon habitat which are relevant to the jeopardy determination.

## **II. Proposed Action**

The "proposed action" is improvements to the City of Cave Junction's existing water system by the City, with partial funding from the RDA. The improvements will consist of the construction of a new water intake structure in the East Fork Illinois River (East Fork), a new water treatment plant, two new

storage reservoirs, and the installation of new water transmission and distribution pipelines. The current water intake for Cave Junction is just downstream of the proposed site of the infiltration gallery, and consists of a push-up dam and a surface intake pipe with an on-shore pump.

The intake structure is proposed to be of the infiltration gallery type and would be just upstream of the U.S. Highway 199 bridge on the East Fork. Construction of the gallery will require excavation of about 7 to 8 feet in depth, from the elevation of the current river bed at approximately 1272-1273 feet above mean sea level (msl) down to about 1265 feet msl. The gravel and cobble substrate of the riverbed is about 1-2 feet in depth, and is underlain with bedrock, which will require explosive excavation. The area to be excavated would be approximately 75 feet long and 22 feet in width, with the shorter axis perpendicular to the current, and would affect approximately two-thirds of the river's base-flow width. Three 16-inch cylindrical screens, each 55 feet in length, would be anchored to bedrock. After the screens are installed, washed and rounded gravel of approximately 1 inch in diameter would be packed in the excavated area around and above the screens to the original elevation of the bedrock at about 1271.5 msl. The excavated and gravel filled area would then be covered with mesh fencing, and the 1-2 feet of cobble/gravel river bottom would be replaced.

Each of the three cylindrical screens would narrow to a 12-inch pipe; the excavation for the three pipes would also narrow to about 10 feet in width as the pipes converge to enter the riverbank and approach the pumphouse, about 30 feet from the edge of the river. Pumphouse construction would require excavation approximately 30 feet deep into soil, gravel, and bedrock. The area excavated for the intake pipelines and pumphouse would be backfilled with native material; the disturbed bank area would be armored with riprap-sized material. In addition to the pumphouse itself, concrete would be poured to support anchor points on the cylindrical screens, to form a retaining barrier around the three pipes under the shoreline, and to form thrust blocks for piping near the pumphouse.

From the pumphouse, one 12-inch iron pipe would run roughly north for about 400 feet to the edge of U.S. Highway 199, along with two electrical conduits, and some other piping/equipment. The water-line would then travel about 1,400 feet northeast along the highway to the water treatment plant, which would be constructed near the southeast corner of the U.S. Highway 199/Oregon Caves Highway (46) junction. Between the pump station and Highway 199, the water pipe, etc. would be buried approximately 3 feet below a gravel-surfaced access road which would be constructed; this access road would largely follow the footprint of an existing dirt road. From the edge of Highway 199 to the treatment plant, the piping would be buried in the highway right-of-way, while electrical lines would be aurally strung from this point.

From the water treatment plant, water would be piped to two new and two existing reservoirs. The new reservoirs, like the old, would be covered storage tanks, rather than open-air impounded or excavated bodies of water. The first new reservoir, with a capacity of 500,000 gallons, would be constructed adjacent to the new water treatment plant, and used for chlorine treatment. From the treatment plant/chlorine contact reservoir complex, treated water would be distributed to the other new

reservoir, with a capacity of 1.5 million gallons, and the two existing storage reservoirs through a combination of new and existing transmission pipelines. The site of the second new reservoir would be on the northeast edge of the city, approximately 1.5 miles from the water treatment plant.

Prior to excavation of the infiltration gallery area, a cofferdam would be constructed to isolate the river bottom area to be excavated from river water. The cofferdam would be constructed of river rock excavated from the site and would be roughly U-shaped, approximately 85 feet in length on the upstream and downstream sides, which would converge to a 25-foot long section parallel to the current. The East Fork would be constricted to a channel approximately 15 feet in width by the cofferdam. The cofferdam would be lined with canvas or a similar material to slow seepage from the river. Water leaking into the cofferdam would be pumped into a sediment settling pond before discharge back to the river. During construction of the infiltration gallery and pumphouse, water will be supplied to Cave Junction through a 6-inch raw water pipe. The intake for this pipe would be similar to the existing surface intake and pump, and would be located just upstream of the cofferdam.

### **III. Biological Information and Critical Habitat**

The listing status, biological information, and critical habitat elements for SONC coho salmon and KMP steelhead are described in Attachment 1. While critical habitat has not been designated for SONC coho salmon, or proposed for KMP steelhead, the attachment describes potential critical habitat elements for these species. Some site-specific information is provided below.

Both SONC coho salmon and KMP steelhead inhabit the East Fork Illinois River and its tributaries. Spawning by coho or steelhead is not known to occur in the lower mainstem of the East Fork, but the site is used as a migration corridor by both adults and juveniles of both species, and as a rearing area by both species. The Oregon Department of Fish and Wildlife (ODFW) operated a smolt screw trap in the pool just above the proposed water intake site in the spring/early summer of 1994-96 (Vogt and Beeman 1995; Vogt 1995, 1996). Age 0+ and/or 1+ coho salmon were sampled from the beginning of trap operation in 1994, 1995, and 1996 (April 22, 3, and 6, respectively) through the end of May in 1994, the first week in June in 1995, and the last week in June in 1996. Coho were captured through the final day of trap operation in both 1995 (June 6) and 1996 (June 28). Calculated trap efficiency for 1+ coho in 1995 was 3.4%; in 1996, trap efficiency was 4.2% for 0+ coho and 7.0% for 1+ coho.

ODFW also trapped age 0+, 1+, and/or 2+ steelhead through the end of the sampling season in each year, with juvenile steelhead captured until June 10 in 1994, June 6 in 1995, and June 28 in 1996. In addition, ODFW conducted snorkel surveys of sites on the East Fork within one mile downstream and two miles upstream of the infiltration gallery site in late August 1992 (Baughman and Baughman 1992). They found several dozen juvenile steelhead/rainbow trout at each of these sites, but no coho salmon.

Based on the ODFW screw trap and snorkeling data, it appears that, as stated in the supplemental BA, juvenile KMP steelhead are present at the site through the summer. Based on the screw trap data, and

contrary to the BA, it appears that coho salmon are likely to be present at the site, at least in some years, into July. This is because coho were still being sampled nearly every day when the trap was removed on June 28, 1996. The low efficiency of the screw trap also suggests that coho would likely be present at the site for a more extended period than documented by trap data.

#### **IV. Evaluating Proposed Actions**

The standards for determining jeopardy are set forth in Section 7(a)(2) of the ESA as defined by the consultation regulations (50 C.F.R. Part 402). Attachment 2 describes how NMFS applies the ESA jeopardy and destruction/adverse modification of critical habitat standards.

As described in Attachment 2, the first steps in applying the ESA jeopardy standards are to define the biological requirements of the listed species and to describe the current status as reflected by the environmental baseline. In the next steps, NMFS' jeopardy analysis considers how proposed actions are expected to directly and indirectly affect specific environmental factors that define properly functioning aquatic habitat essential for the survival and recovery of the species. This analysis is set within the dual context of the species' biological requirements and the existing conditions under the environmental baseline (defined in Attachment 1). The analysis takes into consideration an overall picture of the beneficial and detrimental activities taking place within the action area. If the net effect of these activities is found to jeopardize the listed species, then NMFS must identify any reasonable and prudent alternatives to the proposed action.

##### **A. Biological Requirements**

For this consultation, NMFS finds that the biological requirements of the listed/proposed species are best expressed in terms of environmental factors that define properly functioning freshwater aquatic habitat necessary for survival and recovery of the species. Individual environmental factors include water quality, habitat access, physical habitat elements, channel condition, and hydrology. Properly functioning watersheds, where all of the individual factors operate together to provide healthy aquatic ecosystems, are also necessary for the survival and recovery of the listed/proposed species. This information is summarized in Attachment 1.

##### **B. Environmental Baseline**

Current range-wide status of species under environmental baseline. NMFS described the current population status of the SONC coho in its status review (Weitcamp et al., 1995) and in the final rule (May 6, 1997, 62 FR 24588). The range-wide status of KMP steelhead was determined as a result of an expanded Illinois River steelhead status review (Busby et al. 1994). The recent range-wide status of these species is summarized in Attachment 1. In the absence of adequate population data, habitat condition provides a means of evaluating the status of these species for the environmental baseline assessment.



Current status of proposed/listed species under environmental baseline within the action area. The “action area” is defined as “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action” (50 CFR 402.02). The general action area can be defined as the immediate project site (including the infiltration gallery/pumphouse/access road, water treatment plant/chlorine contact reservoir, 1.5 million gallon storage reservoir, and new transmission lines) and the East Branch and mainstem Illinois Rivers for a few miles downstream of the project site. Both SONC coho and KMP steelhead use the action area as a migration corridor, but no spawning is known to occur there. The action area is used as rearing habitat for juvenile KMP steelhead year-around, but juvenile coho are likely absent from the area in mid- to late summer, because of relatively high water temperatures. The environmental baseline of the action area is dominated by conditions rated largely as “at risk” or “not properly functioning” (see Table 1). These conditions are likely the result of urban and agricultural development, as well as upstream forest management practices.

Based on the best information available on the current status of SONC coho and KMP steelhead (Attachment 1), NMFS’ assumptions given the information available regarding population status, population trends, and genetics (see Attachment 2), and the relatively poor environmental baseline conditions within the action area (see Table 1, below, SONC coho final listing rule, and KMP steelhead proposed listing rule), NMFS concludes that not all of the biological requirements of the proposed and listed species within the action area are currently being met under the environmental baseline. Actions that do not retard attainment of properly functioning aquatic conditions when added to the environmental baseline would not jeopardize the continued existence of anadromous salmonids.

## **V. Analysis of Effects**

### **A. Effects of Proposed Action**

The effects determination in this opinion was made using a method for evaluating current aquatic conditions (the environmental baseline) and predicting effects of actions on them. This process is described in the document “Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale” (NMFS 1996). This assessment method was designed for the purpose of providing adequate information in a tabular form for NMFS to determine the effects of actions subject to consultation. The effects of actions are expressed in terms of the expected effect (restore, maintain, or degrade) on aquatic habitat factors in the project area.

The results of the completed checklist for the proposed action provide a basis for determining the overall effects on the environmental baseline in the action area. The action covered in this opinion was shown to maintain environmental factors over the long-term (more than one year) that could potentially be affected by the proposed project (see Table 1 below). Sediment inputs to the East Fork are likely to be increased over the short-term (four months or less) by the project due to in-water work. Implementation of the proposed measures to reduce sediment inputs, such as a restricted in-water work window and the use of a cofferdam around the in-water work area, will minimize sediment effects

and maintain the existing environmental baseline for sediment over the long-term. In addition, a push-up dam is currently used with the existing water intake. The push-up dam is annually rebuilt with a backhoe or other heavy equipment operating in-water (Personal communication, December 3, 1997, James Shaver, Lee Engineering, with Dan Kenney, NMFS). The annual sedimentation and other adverse in-water effects associated with construction of the push-up dam will no longer occur with the new infiltration gallery water intake, a long-term benefit of the project. Nevertheless, short-lived adverse effects such as temporary increases in sediment have the potential to result in incidental take.

Similarly, short-term adverse effects on the streambank condition and riparian function may occur. Approximately 6 to 10 feet of riprap will be used to protect the 12-inch pipes entering in shoreline from the infiltration gallery, and some vegetation along the path of the pipes will be removed to the pumphouse, approximately 40 feet from the river. The streambank is currently steep and rocky, with little vegetation present. A few small deciduous trees are present on the alignment of the pipes, but these provide little shade or cover to the river because of their size and because of their location several feet away from the immediate streambank and on the northeast side of the river. More than a few feet inland from the river, the vegetation is largely sparse forbs and shrubs such as horsetail and blackberry. Adverse effects on streambank conditions should be confined to the in-stream work period when the cofferdam is in place. Riprap and plantings of native vegetation should ensure that long-term adverse effects do not occur. In addition, the required plantings should quickly replace or exceed existing vegetation that may be removed.

Attachment 3 lists general minimization and avoidance measures regarding in-water work, erosion control, hazardous materials, riparian impacts, and monitoring. These measures are used by the Oregon Department of Transportation, but are directly applicable to the proposal here addressed. Sediment inputs are likely to result from the proposed action due to in-water work, but are expected to be temporary and localized. State regulations require that turbidity not exceed 10 percent above background from more than two hours. A number of measures would be implemented to reduce sedimentation (see Attachment 3). All control devices would be inspected daily during periods of precipitation and weekly during dry periods.

Hazardous material storage, refueling areas, and maintenance areas would be located no closer than 50 feet to the river. External grease and oil would be removed from equipment used for in-water work prior to use within the 2-year flood plain. A Pollution Control Plan (including a spill response plan) would be developed.

Table 1. Summary checklist of environmental baseline and effects of the Cave Junction water supply improvement project on relevant indicators. Short-term (less than 1 year) impacts on relevant indicators are denoted by a minus (-) sign, and are not expected to alter the existing environmental baseline.

<u>PATHWAYS</u>	ENVIRONMENTAL BASELINE			EFFECTS OF THE ACTION(S)		
	Properly <sup>1</sup> Functioning	At Risk <sup>1</sup>	Not Properly <sup>1</sup> Functioning	Restore <sup>1</sup>	Maintain <sup>1</sup>	Degrade <sup>1</sup>
<u>Water Quality:</u>						
Temperature		X			X	
Sediment		X			X(-)	
Chem. Contam./Nutr.	X				X	
<u>Habitat Access:</u>						
Physical Barriers	X				X	
<u>Habitat Elements:</u>						
Substrate	X				X	
Large Woody Debris			X		X	
Pool Frequency		X			X	
Pool Quality			X		X	
Off-channel Habitat			X		X	
Refugia		X			X	
<u>Channel Conditions:</u>						
Width/Depth Ratio			X		X	
Streambank Cond.		X			X(-)	
Floodplain Connectivity			X		X	
<u>Watershed Conditions:</u>						
Road Density/Loc.			X		X	
Disturbance History			X		X	
Riparian Reserves		X			X(-)	

<sup>1</sup> These three categories of function (“properly functioning”, “at risk”, and “not properly functioning”) and the three effects (“restore”, “maintain”, and “degrade”) are defined for each indicator in NMFS (1996).

In addition to short-term effects on sedimentation, streambank condition, and riparian vegetation, the proposed project may result in direct incidental take of SONC coho salmon and/or KMP steelhead if fish are present in the immediate work area when work is being carried out. The proposed project will require the operation of heavy equipment within the East Fork, the construction of a cofferdam, and explosive excavation within the confines of the cofferdam. Also, a temporary water intake will be located above the cofferdam. Any of these actions could harm, harass, or otherwise incidentally take SONC coho or KMP steelhead in the area at that time. These direct effects will be minimized by the proposed project guidelines, such as limiting the in-water work window, and proper screening of the temporary water intake. Long-term adverse effects to SONC coho salmon and KMP steelhead are not likely to occur if the proposed and required measures are performed.

**B. Effects of Interrelated and Interdependent Actions.** Interrelated and interdependent actions are those that would not occur but for the proposed action. The infiltration gallery and pumphouse would replace the existing pump and push-up dam now used for the Cave Junction water supply; reservoirs and transmission lines would replace and supplement existing reservoirs and transmission lines. Water will be withdrawn from the East Fork to supply Cave Junction whether the proposed action is completed or not, and the amount of water withdrawn (approximately 3 cubic feet per second) is not dependent upon the withdrawal method, or the amount of storage volume available. Thus, the proposed action will not result in actions that would not otherwise occur.

**C. Cumulative Effects.** Cumulative effects are defined in 50 CFR 402.02 as "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." The "action area" for this consultation is the construction sites on the East Fork and in Cave Junction and the East Fork and mainstem Illinois River downstream of the sites for a few miles. Future Federal actions, including land management activities, are being (or have been) reviewed through separate section 7 consultation processes. In addition, non-Federal actions that require authorization under section 10 of the ESA will be evaluated in section 7 consultations. Therefore, these actions are not considered cumulative to the proposed action. NMFS is not aware of any future new (or changes to existing) State and private activities within the action area that would cause greater impacts to listed species than presently occurs. NMFS assumes that future private and State actions will continue at similar intensities as in recent years.

## **VI. Conclusion**

NMFS has determined that, based on the available information, the improvements to the City of Cave Junction's existing water system are not likely to jeopardize the continued existence of SONC coho salmon or KMP steelhead, or result in the destruction or adverse modification of proposed critical habitat for SONC coho salmon. NMFS used the best available scientific and commercial data to apply its jeopardy analysis (described in Attachment 2), when analyzing the effects of the proposed action on

the biological requirements of the species relative to the environmental baseline (described in Attachment 1), together with cumulative effects. NMFS applied its evaluation methodology (NMFS 1996) to the proposed action and found that it would cause minor, short-term adverse degradation of anadromous salmonid habitat due to sediment impacts. Both listed species could be present in the action area during at least a portion of the in-water work period of July 1 through October 31. Incidental take could result from in-water construction noise and vibration, especially from explosive excavation. Direct mortality to a few juvenile salmonids due to crushing or stranding during construction, demolition of the cofferdam, or explosive excavation is possible.

In the long-term, NMFS expects that the infiltration gallery system will improve habitat conditions in the action area compared to the existing push-up dam and surface intake system. Push-up dams can require relatively frequent in-water maintenance, and malfunctioning screening on the surface intake has the potential for fish impingement/entrainment. Riparian plantings over the riprap areas should quickly replace the small amount of riparian vegetation lost during construction. NMFS does not expect that potential effects from the proposed action, including short-term sediment input, construction noise and vibration, and the possibility of a small amount of direct mortality due to in-water excavation, would result in reduced prespawning survival, egg-to-smolt survival, or upstream/downstream migration survival rates to a level that would appreciably diminish the likelihood of survival and recovery of these species.

## **VII. Reinitiation of Consultation**

Consultation must be reinitiated if: the amount or extent of taking specified in the Incidental Take Statement is exceeded, or is expected to be exceeded; new information reveals effects of the action may affect listed species in a way not previously considered; the action is modified in a way that causes an effect on listed species that was not previously considered; or, a new species is listed or critical habitat is designated that may be affected by the action (50 CFR 402.16).

Based on the information in the BAs, NMFS anticipates that an unquantifiable amount of incidental take could occur as a result of the actions covered by this Biological Opinion. To ensure protection for a species assigned an unquantifiable level of take, reinitiation of consultation is required: (1) if any action is modified in a way that causes an effect on the listed species that was not previously considered in the BAs and this Biological Opinion; (2) new information or project monitoring reveals effects of the action that may affect the listed species in a way not previously considered; or (3) a new species is listed or critical habitat is designated that may be affected by the action (50 CFR 402.16).

## **VIII. References**

Section 7(a)(2) of the ESA requires biological opinions to be based on "the best scientific and commercial data available." This section identifies the data used in developing this opinion, in addition to the BA.

Baughman, P. and S. Baughman. 1992. Illinois River snorkel study. Oregon Department of Fish and Wildlife, August/September 1992. 13 pp.

Busby, P.J., T.C. Wainwright, and R.S. Waples. 1994. Status review for Klamath Mountains Province steelhead. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-NWFSC-19, 130 pp.

NMFS (National Marine Fisheries Service). 1996. Making Endangered Species Act determinations of effect for individual and grouped actions at the watershed scale. Habitat Conservation Program, Portland, Oregon.

Vogt, J. 1995. 1995 Illinois River screw trap project. Oregon Department of Fish and Wildlife , Rogue Fish District Report, October 1995. 10 pp.

Vogt, J. 1996. 1996 Illinois River screw trap project. Oregon Department of Fish and Wildlife , Rogue Fish District Report, October 1996. 11 pp.

Vogt, J., and B. Beeman. 1995. 1994 Illinois River screw trap project. Oregon Department of Fish and Wildlife , Rogue Fish District Report, January 1995. 5 pp.

Weitcamp, L.A., T.C. Wainwright, G.J. Bryant, G.B. Milner, D.J. Teel, R.G. Kope, and R.S. Waples. 1995. Status review of coho salmon from Washington, Oregon, and California. U.S. Department of Commerce, NOAA Technical Memorandum NMFS-NWFSC-249, 258 pp.

## **IX. Incidental Take Statement**

Sections 4 (d) and 9 of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering. Harass is defined as actions that create the likelihood of injuring listed species to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. Incidental take is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

An incidental take statement specifies the impact of any incidental taking of endangered or threatened species. It also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

### **A. Amount or Extent of the Take**

The NMFS anticipates that the action covered by this Biological Opinion (improvements to the City of Cave Junction's existing water system) has more than a negligible likelihood of resulting in incidental take of SONC coho and KMP steelhead because of short-term increases in sediment levels and the potential for direct incidental take during in-water work (especially cofferdam construction and pumping, and blasting). Effects of actions such as these are largely unquantifiable in the short term, and are not expected to be measurable as long-term effects on the species' habitat or population levels. Therefore, even though NMFS expects some low level incidental take to occur due to the actions covered by this Biological Opinion, the best scientific and commercial data available are not sufficient to enable NMFS to estimate a specific amount of incidental take to the species itself. In instances such as these, the NMFS designates the expected level of take as "unquantifiable." Based on the BAs and other information, NMFS anticipates that an unquantifiable amount of incidental take could occur as a result of the actions covered by this Biological Opinion.

### **B. Reasonable and Prudent Measures**

The NMFS believes that the following reasonable and prudent measures are necessary and appropriate to minimize the take of SONC coho and KMP steelhead.

1. The RDA shall minimize the potential for direct incidental take of SONC coho and KMP steelhead due to sedimentation, operation of heavy equipment in-water, coffer damming, and blasting.

**C. Terms and Conditions**

In order to be exempt from the prohibitions of section 9 of the ESA, RDA must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

- 1a. Minimization/avoidance measures listed in Attachment 3 for in-water work, erosion control, hazardous materials, riparian impacts, and monitoring shall be implemented for the proposed action in accordance with the terms and objectives of Attachment 3. Although Attachment 3 specifically deals with road-construction and maintenance activities of the Oregon Department of Transportation, the measures, terms, and objectives are directly applicable to the proposed action.
- 1b. All work within the active flowing channel (in-water work) shall occur between July 1 and October 31.
- 1c. Fish passage around the cofferdam shall be maintained at all times.
- 1d. Replace riparian vegetation at the project site with native species to the maximum extent horticulturally possible.
- 1e. The temporary pump intake for the Cave Junction water supply used during construction shall meet the specifications in Attachment 4.